Is there a role for aortic valve balloon valvuloplasty in the modern era?

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Aim. To investigate early outcomes after balloon aortic valve valvuloplasty (BAV) performed as palliative procedure in patients with decompensated unstable end-stage aortic stenosis (AS).

Patients and Methods. A retrospective observational study was conducted in University Hospital Centre Zagreb. It included all patients who underwent lifesaving BAV, and had no options for surgical or transcatheter aortic valve replacement at the time, between 2015 and 2018. Clinical and echocardiographic characteristics before and after BAV procedure were recorded.

Results. Study included 29 patients, mean age 80.2 (51-92) years, 65.5% women. Mean logistic Euroscore II was 24.1±21.1% and STS score 16.9±14.5%. Comorbidities included: coronary artery disease (48.28 %), diabetes mellitus (31.4 %), chronic renal insufficiency (58.6 %), peripheral artery disease (17.2 %) and atrial fibrillation (55.2 %). All patients were dependent on parenteral diuretics and 24.14 % on parenteral inotropic support. Echocardiographic parameter before and after BAV are presented in **table 1**. There was significant increase in indexed aortic valve area and decrease in pulmonary artery systolic pressure in overall population. There was no significant change in severity of aortic insufficiency. In-hospital mortality was 20.1 % (N=6). Periprocedural complications included: 1 (3.4%) myocardial infarction, 1 (3.4%) major bleeding, 1 (3.4%) acute kidney injury and 2 (6.9%) vascular access complications. All other patients have been successfully weaned of parenteral therapy within 4 days and discharged.

TABLE 1. Echocardiographic parameters before and after aortic valve balloon valvuloplasty.

	Before BAV (n=29)	After BAV (N=25)	P value
Ejection fraction (%)	35.6±12.3	36.9±13.8	0.691
E/E´	25.7±8.8	25.1±13.2	0.821
Maximal pressure gradient - mmHg	71.1±42.1	56.8±31.1	0.134
Mean pressure gradient – mmHg	41.7±24.1	31.1±14.9	0.055
Indexed aortic valve area	0.341±0.008	0.399±0.12	0.030
Any aortic insufficiency N (%)	22 (75.9)	21 (84)	0.459
More than mild mitral insufficiency N (%)	18 (62.1)	17 (68)	0.649
Pulmonary artery systolic pressure - mmHg	64.8±27.1	46.8±17.5	0.001

BAV = balloon aortic valve valvuloplasty

Conclusion. BAV represents palliative treatment option in critically ill hemodynamically unstable patients with end-stage AS, who are not candidates for valve replacement.[1] BAV provides clinical improvement due to increase AVA and decrease in PAPs, with acceptable mortality and complications rate.

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LITERATURE

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